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AUTHOR Lisman, Stephen A.; And Others
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ABSTRACT

Alcohol researchers have sought to characterize the relationship between cue responsivity and alcohol consumption by alcoholics. This study used the beverage tasting paradigm to test for differences in cue responsivity in adolescent sons of alcoholics. It was hypothesized that, compared to sons of nonalcoholics, sons of alcoholics would be more insensitive to internal cues to drinking nonalcoholic beverages and more sensitive to external cues to drinking. Subjects were 36 nonalcoholic male college students, matched for current drinking practices, who were randomly assigned to either a preload or a no preload condition. Seventeen subjects were identified through family histories as high-risk because of paternal alcoholism. Presence or absence of internal cues related to drinking was manipulated by withholding or administering, respectively, preloads of 16 to 20 ounces of water. All subjects were then given orange juice and grapefruit juice to drink. The results revealed a significant interaction between risk group and preload condition, confirming the internality hypothesis. Sons of alcoholics drank significantly more juice following a water preload than did sons of nonalcoholics. The externality hypothesis was not supported. These findings suggest that a non-alcohol-specific "deficit" in responsivity to internal cues related to beverage consumption may be a risk factor for the development of alcoholism. (NB)

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EXTERNAL VERSUS INTERNAL CONTROL OF BEVERAGE CONSUMPTION IN MALES AT RISK FOR ALCOHOLISM

Stephen A. Lisman, Ronald T. Murphy, Tony Trawitzki,
Tim Hayes & Philip D. Harvey

State University of New York at Binghamton

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INTRODUCTION

PREVIOUS RESEARCH HAS INDICATED THE IMPORTANCE OF INDIVIDUAL DIFFERENCES IN RESPONSIVITY TO INTERNAL AND EXTERNAL CUES IN EATING BEHAVIOR (E.G. SCHACTER, 1971). SIMILARILY, ALCOHOL RESEARCHERS HAVE SOUGHT TO CHARACTERIZE THE RELATIONSHIP BETWEEN CUE RESPONSIVITY AND ALCOHOL CONSUMPTION BY ALCOHOLICS (BROWN & WILLIAMS, 1975; TUCKER, VUCHINICH, & SOBELL, 1979). SPECIFICALLY, SEVERAL STUDIES HAVE SUGGESTED THAT ALCOHOLICS MAY BE HIGHLY SENSITIVE TO EXTERNAL OR ENVIRONMENTAL CUES, AND AT THE SAME TIME BE INSENSITIVE TO THE INTERNAL OR PHYSIOLOGICAL CUES RELATED TO DRINKING ALCOHOL. IN SUPPORT OF THIS HYPOTHESIS, SEVERAL STUDIES HAVE CLEARLY DEMONSTRATED THAT ALCOHOLICS' CONSUMPTION OF EVEN NONALCOHOLIC BEVERAGES IS STRONGLY INFLUENCED BY EXTERNAL STIMULI (E.G., TASTE), AND MUCH LESS INFLUENCED BY INTERNAL STIMULI (E.G., FEELINGS OF FULLNESS). IN CONSTRAST TO THE BEVERAGE CONSUMPTION OF ALCOHOLICS, THE CONSUMPTION OF NONALCOHOLIC ADULT MALES IS LESS AFFECTED BY EXTERNAL CUES AND MORE AFFECTED BY INTERNAL CUES (TUCKER, VUCHINICH, BORDINI, & SULLWOLD, 1982).

IF ALCOHOLICS HAVE A GENERAL DEFICIT IN RESPONSIVITY TO INTERNAL AND EXTERNAL CUES TO BEVERAGE CONSUMPTION AS PREVIOUS RESEARCH SUGGESTS, IT IS STILL UNCLEAR WHETHER THIS DEFICIT MAY BE A CAUSE, EFFECT, OR CORRELATE OF ALCOHOLISM. ONE WAY TO BEGIN TO ADDRESS THIS QUESTION IS DETERMINE WHETHER INDIVIDUALS AT RISK FOR ALCOHOLISM ALSO SHOW THIS DEFICIT.

THE PRESENT STUDY USED THE BEVERAGE TASTING PARADIGM AS

DESCRIBED BY TUCKER, VUCHINICH, BORDINI, AND SULLWOLD (1982) TO TEST FOR DIFFERENCES IN CUE RESPONSIVITY IN ADOLESCENT SONS OF ALCOHOLICS, A POPULATION AT HIGH RISK FOR DEVELOPING ALCOHOLISM. THERE WERE TWO SEPARATE HYPOTHESES: 1) SONS OF ALCOHOLICS COMPARED TO SONS OF NONALCOHOLICS WOULD BE MORE INSENSITIVE TO INTERNAL CUES TO DRINKING NONALCOHOLIC BEVERAGES (INTERNAL CUE HYPOTHESIS); AND 2) SONS OF ALCOHOLICS WOULD BE MORE SENSITIVE TO EXTERNAL CUES TO DRINKING (EXTERNAL CUE HYPOTHESIS).

METHOD

SUBJECTS. THIRTY-SIX NONALCOHOLIC UNDERGRADUATE MALE VOLUNTEERS WERE SELECTED BASED ON THEIR RESPONSES TO A FAMILY HISTORY QUESTIONNAIRE. HIGH RISK SUBJECTS REPORTED PATERNAL ALCOHOLISM, DEFINED AS WHETHER THEIR FATHER HAD EXPERIENCED ANY LEGAL, SOCIAL, MARITAL, OR MEDICAL CONSEQUENCES DUE TO ALCOHOL. SUBJECTS WERE MATCHED FOR THEIR CURRENT DRINKING PRACTICES VIA THE QFV (QUANTITY, FREQUENCY, AND VARIABILITY) INVENTORY (CAHALAN, CISIN, AND CROSSLEY,1969), AND THEN RANDOMLY ASSIGNED TO EITHER A PRELOAD OR NO PRELOAD CONDITION.

DESIGN. THIS STUDY WAS COMPRISED OF A 2 X 2 BETWEEN SUBJECTS FACTORIAL DESIGN (RISK GROUP: HIGH OR LOW X LIQUID PRELOAD CONDITION: PRELOAD OR NO PRELOAD).

PROCEDURE. THE PRESENCE OR ABSENCE OF INTERNAL CUES RELATED TO DRINKING WAS MANIPULATED BY WITHOLDING OR ADMINISTERING, RESPECTIVELY, LIQUID PRELOAD. IN THE PRELOAD CONDITION SUBJECTS DRANK 7.3 ML/KG BODY WEIGHT OF WATER (ABOUT 16-20 OZ.) IN A 15 MINUTE PERIOD. SUBJECTS IN THE NO PRELOAD CONDITION SAT OR READ QUIETLY DURING THE 15 MINUTE PERIOD. SUBJECTS WERE THEN GIVEN TWO 1000 ML FLASKS. ONE CONTAINING ORANGE JUICE AND ANOTHER CONTAINING GRAPEFRUIT JUICE ALONG WITH TWO EMPTY CUPS. JUICE PREFERRENCE CORRESPONDED TO OUR MANIPULATION OF EXTERNAL STIMULI. UNDER THE GUISE OF A TASTE RATING TASK, SUBJECTS SAMPLED EACH BEVERAGE WHILE RATING THE TASTE QUALITIES OF 20 ADJECTIVES.

A TEST OF THE INTERNAL CUE HYPOTHESIS CONSISTED OF

COMPARING THE PRELOAD VERSUS THE NO-PRELOAD GROUPS ON TOTAL BEVERAGE CONSUMPTION. THAT IS, INSENSITIVITY TO INTERNAL CUES WOULD BE INDICATED BY NO EFFECT OF PRELOAD ON TOTAL JUICE CONSUMPTION. A TEST OF THE EXTERNAL CUE HYPOTHESIS CONSISTED OF COMPARING THE MAGNITUDE OF THE DIFFERENCE BETWEEN PREFERRED AND NONPREFERRED JUICE CONSUMPTION. GREATER EXTERNALITY WOULD BE INDICATED BY A GREATER DIFFERENCE IN PREFERRED VERSUS NONPREFERRED JUICE CONSUMPTION.

RESULTS

ANALYSIS OF VARIANCE REVEALED A SIGNIFICANT INTERACTION BETWEEN RISK GROUP AND PRELOAD CONDITION ($F = 9.131$, $p < .005$). THIS INTERACTION WAS IN THE PREDICTED DIRECTION AND CONFIRMED THE INTERNALITY HYPOTHESIS. THAT IS, SONS OF ALCOHOLICS DRANK SIGNIFICANTLY MORE JUICE (ORANGE AND GRAPEFRUIT) FOLLOWING A WATER PRELOAD THAN DID SONS OF NONALCOHOLICS - 573 ML COMPARED TO 143 ML (TABLE 1).

NO SIGNIFICANT MAIN EFFECT WAS REVEALED FOR RISK GROUP ON THE AMOUNT OF PREFERRED BEVERAGE MINUS NONPREFERRED BEVERAGE CONSUMED, THUS THE EXTERNALITY HYPOTHESIS WAS NOT SUPPORTED (FIGURE 1).

DISCUSSION

COLLEGE MALES AT RISK FOR ALCOHOLISM WERE SIGNIFICANTLY LESS SENSITIVE TO INTERNAL, OR BODILY, CUES WHEN DRINKING NONALCOHOLIC BEVERAGES AS COMPARED TO SUBJECTS NOT AT RISK FOR ALCOHOLISM. THESE RESULTS ARE IN ACCORD WITH PREVIOUS RESEARCH COMPARING ALCOHOLIC AND NONALCOHOLIC POPULATIONS ON CUE RESPONSIVITY (BROWN & WILLIAMS, 1975; TUCKER, VUCHINICH, & BORDINI, & SULLWOLD, 1982; TUCKER, VUCHINICH, & SOBELL, 1979). OUR RESULTS SUPPORT THE HYPOTHESIS THAT A NON-ALCOHOL-SPECIFIC "DEFICIT" IN RESPONSIVITY TO INTERNAL CUES RELATED TO BEVERAGE CONSUMPTION MAY BE A RISK FACTOR OR MARKER FOR THE DEVELOPMENT OF ALCOHOLISM. ADDITIONAL STUDIES WILL ATTEMPT TO IDENTIFY THE PRESENCE OF THIS DEFICIT IN YOUNGER POPULATIONS. SUCH A DEVELOPMENTAL APPROACH MAY HELP TO DETERMINE HOW THE DEFICIT MAY RELATE TO GENETIC AND FAMILIAL RISK FACTORS FOR ALCOHOLISM, AND MAY ULTIMATELY CONTRIBUTE TO THE PREDICTION AND PREVENTION OF ALCOHOL-RELATED PROBLEMS.

REFERENCES

BROWN, R.A. & WILLIAMS, R.J. (1975). INTERNAL AND EXTERNAL CUES RELATING TO FLUID INTAKE IN OBESE AND ALCOHOLIC PERSONS. JOURNAL OF ABNORMAL PSYCHOLOGY, 84, 660-665.

SCHACHTER, S. (1972). EMOTION, OBESITY, AND CRIME. NEW YORK: ACEDEMIC PRESS.

TUCKER, J.A., VUCHINICH, R.E., & SOBELL, M.B. (1979). DIFFERENTIAL DISCRIMINATIVE STIMULUS CONTROL OF NONALCOHOLIC BEVERAGE CONSUMPTION IN ALCOHOLICS AND IN NORMAL DRINKERS. JOURNAL OF ABNORMAL PSYCHOLOGY, 88, 145-152.

TUCKER, J.A., VUCHININICH, R.E., BORDINI, E., & SULLWOLD, A. F. (1982). THE GENERALITY OF THE STIMULUS-BINDING HYPOTHESIS ACROSS DRINKING BEHAVIOR AND TASK PERFORMANCE IN ALCOHOLICS. ADDICTIVE BEHAVIORS, 7, 303-306.

CAHALAN, D., CISIN, I.H., & CROSSLY, H. (1969). AMERICAN DRINKING PRACTICES. NEW BRUNSWICK, N.J.: RUTGERS CENTER FOR ALCOHOL STUDIES.

PRELOAD CONDITION	FAMILY HISTORY POSITIVE (HIGH RISK SUBJECTS)	FAMILY HISTORY NEGATIVE (LOW RISK SUBJECTS)
PRELOAD	573.2 MILLITERS (SD = 388.40) N = 9	143.4 MILLITERS (SD = 98.78) N = 9
NO PRELOAD	392.33 MILLITERS (SD = 254.68) N = 8	484.2 MILLITERS (SD = 264.70) N = 10

TABLE 1. TEST OF THE INTERNALITY HYPOTHESIS: EFFECTS OF FAMILY HISTORY AND LIQUID PRELOAD ON BEVERAGE CONSUMPTION.

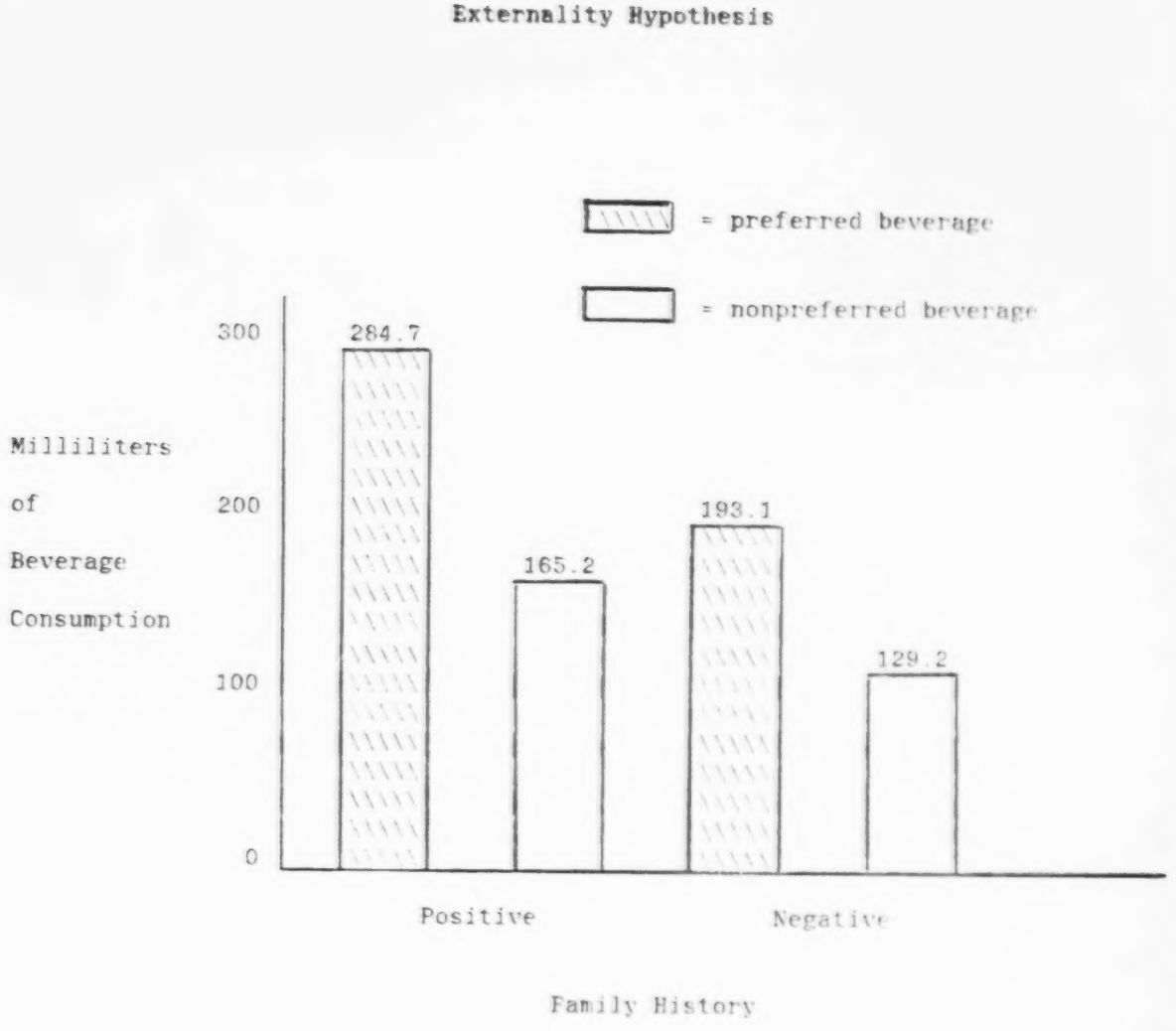

Figure 1. Test of the Externality Hypothesis - Effects of family history on preferred beverage consumption.